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PCT-Application PCT/IB02/03890
Applicant / Owner: Nokia Corporation
Our Ref.: 51196 WO (KG/BK)

In Response to the Written Opinion Following Rule 66, Dated August 03, 2004:

I. New Documents

We submit herewith an amended set of new claims 1 to 23.

The new independent claims 1 to 23 have been clarified in that the additional information data have been specified to be related to a current radio broadcast (as disclosed in the specification on page 11, third section, first sentence). It is further clarified that said additional information, when received at the terminal device, is updated additional information, to be conforming to the wording of the method claims claiming a "method for updating ...". Additionally it is emphasized that a connection is provided between the radio station and the server for transferring said additional information data of the current radio broadcast. The second feature is based on the section "network module for receiving said additional information data from said broadcast station" of original claim 25.

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The pending claims 23 and 24 have been deleted.

The new claim 23 is disclosed in the original claim 25.

We kindly ask that the further adaptation of the specification to the newly filed claims may be deferred until allowable claims have been achieved.

II. Object of the present invention

It is the object of the present invention to optimize the data exchange between a user device and a radio station without a waste of network resources and to provide a system that is easy to use, in which an incorrect operation is almost impossible, and to provide a system capable of selectively delivering additional information to a certain user (See page 2, line 34 to page 3, line 5). The present invention allows the user to know what song or music track is playing on the radio channel and possibly other details about what the user is listening to (See page 1, lines 7-8)

III. The invention as claimed

The present invention as claimed pertains to a method, a system and the components for delivering and updating additional information data related to the contents of an actual or current radio broadcast from a radio station to terminal devices.

That is, the present invention is related to a method to improve the additional data transfer from a radio station (as e.g. known from the RDS or ISCR system) to a user device. According to the present invention this is achieved by a "data push service" from a radio station via a server and further via a wireless communication network to a terminal device (being at least capable of currently) receiving a radio broadcast program.

That is, the present invention utilizes an additional communication path to (more or less continuously) transfer information to a terminal that is related to the current radio program of a radio station. In contrast to the known approaches to provide additional information to a currently broadcasted radio program the radio station delivers said additional information data of said current radio broadcast from said at least one broadcast station to a server to be wirelessly transferred to a mobile terminal device.

The present invention uses an additional transmission path to the terminal device to

provide said additional information. This additional information path provides a repeated or semi-continuous data transfer to the terminal, as otherwise information related to the current radio broadcast would not be up to date (and therefore would be related to a "former broadcast").

The present invention enables a device to simultaneously display data from a radio broadcast and the additional information received via the wireless network module. That is, the user can use a display on the terminal device to obtain said additional information. This also implies that the additional information does not comprise any audio information, as this would interfere with said received radio broadcast.

It may also be noted that the present invention is related to an updating process which implicitly requires that the terminal is capable of a simultaneous receiving a radio broadcast and receiving and displaying additional information transferred via a wireless communication network.

VI. State of the Art

The examining division has cited four different documents representing the state of the art.

D1: EP 1113605 A2

D2: WO 02052815 A2

D3: DE 10053739 A1

D4: EP 0725489 A1

The Examiner has cited the document D1 as closest prior art document. D1 discloses a system wherein a mobile radio device can store audio data or music information extracted from the radio broadcast into a music information storage. The storage process can be started by user input. D1 is intended to simplify the purchase of music by a user if the user is actually not capable of noting a certain interpret or the like. In D1 this is solved by a storage operation of the music information. This information can be used in a successive step to request or make available said music or said information of a specific interest. D1 may be used to simplify the access to a certain data carrier such as a CD or a downloadable music data file. However the system and device of D1 is not capable of providing and updating additional information related to the contents of a current radio broadcast.

In the whole document D1 it is everywhere emphasized that the downloadable information is obtained at a later point in time and is not regularly updated and can not be available at the time a certain music track is broadcasted.

The document D2 discloses a method and a device to "display as part or all of an idle screen updated information which is (a) defined by a user of the device to be of a kind which is of interest to him or her and is (b) supplied to the device from a remote information resource". In the text is disclosed a push service to a mobile telephone device to be able to display on an idle screen of a mobile telephone messages pushed through a communication network. D2 also discloses a simplification of the user access to certain menu points to speed up an access to certain push-type information. The document D2 also discloses that in case of an mp3 enabled telephone or in case that the telephone comprises a digital radio receiver that information related to the currently played music track may be displayed on the idle screen.

The document D3 discloses a system wherein a user can pass on or re-route a music track (or a fraction of a music track) received from a broadcast station to a service center. In the service center an audio recognition is performed to determine the received audio content. D3 is just the technical implementation of calling a friend by phone, to ask him if he knows a certain music track and holding the telephone to the radio receiver to forward the audio signals via a communication connection. If the friend knows this music track, he may tell the song title, interpret and maybe even the CD title, or may even suggest to borrow the CD if he already has bought it.

Document D4 discloses a "broadcasting station data detecting apparatus for a mobile body and broadcast receiving apparatus for mobile bodies". That is, the document D4 relates to a system to relieve a driver moving across the radio ranges of different broadcast stations from the task to search and select a new broadcast stations of channels while driving. D4 is based on a broadcast receiver coupled to a positioning system for mapping landscape data in relation to broadcast signal strengths. It seems that the document does not disclose any transmission of broadcast related data, and especially not the transfer of broadcast related data via an additional transmission path.

VI. Novelty

The examiner has objected to the novelty of the claims 1, 8, 14-19, and 24-25. The original claim 25 has been deleted.

To avoid any misunderstandings in the discussion of the novelty of the claims with respect to D1 the following definition (as defined in the abstract of D1) is used:

"Identification information" is the information that is extracted from a current broadcast and that may be stored in a memory device upon a user-input.

This stored "identification information" can be sent to a server to request "downloadable information" or "downloadable information items" from the server.

In contrast to the assessment of the examiner the new claims are novel with respect to D1 as the identification information and the downloadable information is only provided once in response to user commands for each piece of interesting music. D1 as such does not disclose any kind of information related to the current radio broadcast received via any other path than the broadcast itself. Additionally, D1 does not disclose any kind of updating process of received data. This is, the memory is only changed upon user input, and additionally the outdated information in the memory is not deleted with the next storage operation. D1 does not disclose that the downloadable information may be made accessible directly and simultaneously with the broadcast (see [0010] "When the user later has..."). In the whole document D1 it is everywhere emphasized that the additional information is obtained at a later point in time. Furthermore the radio receiver disclosed in D1 does not comprise a display (relevant for claims 19-23). At least even the figures D1 do not disclose any possibility to display or output data received from a server.

In D1 an identification information is extracted from a current broadcast of a music track or other type of information of interest to a mobile user and stored in a memory or other storage device, e.g. a database, in response to a user commands. The identification information of D1 does not correspond to the additional information concerning the broadcast of the present invention. According to the present invention the additional information is received from a server via an additional wireless communication connection and is not extracted from the broadcast itself.

It is stated in D1 that a server is used to receive downloadable information which is associated with the previously stored identification information of the (at that time current) broadcast. The downloadable information is related to the identification information, and does not represent an updating procedure, as the music title the identification information and the downloadable information is related to are the same. D1 is directed to enable a user to obtain the information necessary to obtain a certain music carrier and not to provide additional information of a currently played music track via an additional network

connection. D1 does not disclose that this downloadable information may also be updated or may be received and displayed simultaneously with the reception of the current radio broadcast.

D1 only discloses a single transmission of "deliverable information" for each access to a server. That is, the "deliverable information" is received from the server only once, an updating procedure of the deliverable information is not planned, and the information is not expected to be made available at the time the broadcast is sent. Additionally the user has to take additional actions to arrange about the request for "deliverable information" to the server.

The statement of the examiner that the identification information is associated with the current broadcast is correct. However it is not correct that the content of the memory used to later access the deliverable information (item) is automatically updated, as this action requires a user interaction. That is, the content of the memory (used to request the downloadable information from the server later) is not automatically updated.

In the light of the disclosure it is not clear how the statement of the examiner „Thus, since the additional information is associated with the current broadcast, the information is automatically updated if the information delivered to the user via a server is changed.“ is intended to be interpreted.

Similarly, the statement of the examiner that „The mobile devices are also selectively determined since the information is delivered to a user in response to received user commands.“ is not supported by D1.

Actually, in D1 there is no selective identification of mobile devices, as it can be expected that in D1 it may not happen that two devices request at the same time the same downloadable information. That is, in case of D1 any deliverance of information is custom made, thus no selective determination of a delivery of deliverable information is required.

There is no selection if any requesting device is provided with deliverable information. The only selectivity in D1 is caused by the user selecting which identification information is to be stored in the memory and which of these information is sent to a server to request said downloadable information.

Therefore, even if a user would have direct and instantaneous access to the server in D1 an updating process would not occur.

Thus it is definitively shown that the subject matter of the present invention as claimed in the independent claims is novel with respect to the disclosure of document D1.

With respect to the document D2 the examiner states that document D2 also describes and illustrates a mobile telephone device capable of receiving updated information related to a broadcast such as music, which is correct. In the cited passage on page 17, lines 3 to 6 discloses that if the mobile telephone is also a music download platform (e.g. downloads from mp3 music sites or is a digital radio receiver), then information in the idle screen can relate to the currently played music track (e.g. artist information, track information, concert dates links to e-commerce functionality such as buying CDs).

The document D2 only relates to digital radio that is as such already capable of transferring arbitrary information in the broadcast bit data stream to a digital radio receiver. In the case of an mp3 playback there is no solution disclosed for a download of updated information, thus it is expected that the in case of an mp3 player a information is displayed that has been downloaded or together with the music file (during the same download process and the same download channel). In case of the only disclosed embodiment of a radio receiver incorporated in the device this digital radio receiver is as such capable of receiving the information related to a currently played music track via data coded into the radio signal. In case of digital radio the restrictions of the radio data system for providing (permanently updated) information are not longer present. In the passage of page 17, lines 3 to 6 there is disclosed nothing that goes beyond the capabilities of a conventional digital radio. Thus in the light of the totally toll free service that can be provided by digital radio there is no reason left why a service that produces costs should be used when a cost free alternative is available that can achieve the same result with less expense. This assessment is supported by the fact that all the information that may be transferred to the user and that relates to music artist information, track information, concert dates and even links to e-commerce functionality is comprised of small amounts of data that can easily be packed onto a bit stream of a digital radio broadcast. Additionally, D2 as such does not disclose any data connection between the radio station and the remote information source, which represent one of the core aspects of the present invention.

That is, D2 does not, neither implicitly nor explicitly, disclose that two different communication paths can be used to provide a certain combined information related to a

current broadcast to a user device, thus the subject matter of the present invention as defined in the new claims is to be regarded as being novel.

D3 represents just the technical implementation of someone calling a friend by phone, to ask him if he knows a certain music track and subsequently holds the phone to the radio receiver to forward the audio signals via a telephone line. To implement the present invention in this analogous scenario, the friend would have to work at the radio station and send each actual title and additional information such as CD cover pictures via short message or via multimedia message to the friend simultaneously with the broadcast. That is, D3 discloses a time synchronous transmission of additional information to a user (as e.g. the forwarding of the audio single to the service center has to be provided as a certain music track is currently broadcasted). The system of D3 has the advantage that a user may also determine additional information of acoustic signals once recorded. However, it seems not clear how the system of D3 may update the information provided to the user. Additionally there is no direct connection between the broadcast station and the service center provided. Thus the argumentation backing up the novelty of the subject matter of the present claims is based on the same arguments given above about the novelty with respect to document D1.

The document D4 does not disclose the transmission or an updating of an information related to a current broadcast. That is, the subject matter of the new claims is new with respect to the disclosure of document D4.

VI. Inventive step

The examiner objected to an inventive step of all pending claims with regard to the cited documents D1 to D4.

Starting from D1 alone an artisan would strive to improve the storage capability of the terminal as disclosed in D1. From the customers side of view a most probable and suitable improvement for a customer would reside in a kind of "storage oscilloscope type radio recorder" using a transient memory for recording e.g. ½ hour of the current broadcast. When pressing a button the device would automatically be able to transfer the whole currently played music track to built-in music storage to be made available for later playing. When provided with an mp3 module there would be no need for any kind of additional MP3-coded file download, as the whole file would be accessible. Similarly, e.g. an announcement of the currently played music track or radio data radio signal coded data

may be made accessible with the stored recording. If a user can store an identification of a music track, and being confronted with dropping memory prices there is the possibility of storing the whole music track and not only a kind of small information element. D1 has been provided to simplify the access of a user to music files. Anyhow, it may be simpler to record all desired music files on the fly, and transfer it in to a non-volatile memory when desired, which is even simpler. If a user would still desire to purchase the original music file, he still can use the whole recorded file (probably with the additional information) to identify the desired music track of the desired "deliverable information item".

That is, starting from D1 alone, there is no indication why a artisan would implement a second data transfer path to a user terminal for getting an information necessary for purchasing a music track already recorded in the device. Especially in a mobile environment with the strong restrictions of reproduction quality the possible degradations of the recorded signal do not seem to be of considerable relevance, especially when considering the background noise in a mobile environment.

Thus it is expected that the examiner will follow the arguments and confirm that the disclosure of D1 teaches away from an automated updating procedure of information related to a current broadcast via a second independent data transfer path.

Though the system disclosed in D1 is also comprised of a network server, a database, a mobile terminal device, a wireless network, and a broadcast station it does not disclose a direct connection from the server to the broadcast station; similarly for the present invention a database is not strictly required. That is, when considering the disclosed topographies the structure of the connections is definitively different.

It seems not clear how the features of an automated data update of additional information related to a current radio broadcast may be transferred and updated via a second nearly independent information transfer path may be derived from the disclosure of D1.

Thus the subject matter of the present invention as defined in the new claims is to be considered as being inventive over the disclosure of D1 alone.

As already discussed in the section "novelty" the document D2 does not disclose or teach an automated update of data via two different transmission paths. In the cited most relevant passage of D2, on page 17, lines 3 to 6 it is disclosed a mobile telephone when comprising a digital radio receiver may also display information in the idle screen related

to the currently played music track (e.g. artist information, track information, concert dates, links to e-commerce functionality such as buying CDs).

The document D2 only relates to digital radio that is as such already capable of transferring arbitrary information in the broadcast bit data stream to a digital radio receiver. Similarly, D2 does not disclose that the updateable information may be received via a second transmission paths. In each embodiment of D2 only a single medium is used to transfer the updateable data. In this embodiment it is not disclosed nor suggested that the digital radio receiver information displayed on the idle screen can be received via a separate data connection. Even the embodiment that implements different contents on the idle screen, for example messages related to the operation of the telephone (e.g. SMS notifications) and e.g. weather information are always received via a single channel and are not related to each other.

Thus, when starting with the disclosure of D2 a user or an artisan would improve the data transfer of additional data within the digital radio signal instead of using a download from another data source. Such a toll free service of an enhanced radio data system would result in a superior user acceptance. The improved data transfer via digital radio would economize the need for any combination of the disclosures of documents D1 and D2. If an artisan would still want to combine the disclosures, it is expected that a device would be implemented that may use a transient memory for recording a whole timer period, or a extended memory device would be implemented that is capable of storing al the additional information received via digital radio in the phone.

The use of digital radio with the extended capabilities of providing additional data to the user would remove the cause for the data transfer from the terminal to the service center, as the desired downloadable information is already available.

That is, even the combination of the documents D1 and D2 can not suggest the subject matter of the present invention as claimed in the new set of claims 1-23.

The disclosure of D3 relates to a n information obtaining method that is principally similar to the method of D1. In D3 the identification data is transferred to the service center in form of the actually received data stream, and is not extracted and stored in the device. That is, in contrast to the disclosure of D1, the method of D3 can provide an immediate access to the requested information. That is, D3 may provide the requested information synchronously with the broadcast if the music recognition is fast enough. In contrast to D1

the method of D3 is strictly based on music recognition software to identify a certain music track, as the system is based on an audio signal transfer to the service center. That, is the audio signal transferred to the server is not comprised of additional information such as can be provided by radio data system or the like.

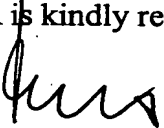
The method of D3 relies on forwarding or re-routing of received information to acquire a single downloadable information related to a received broadcast, that is not intended to be updated. As an updating process and a direct transfer of additional data from the broadcast station to the server are both not intended in both documents it is clear that the combination can not provide this combination of features.

That is, the subject matter of the present invention as defined in the new claims is to be considered as being inventive over a combination of the documents D1 and D3.

The disclosure of document D4 can only provide an automated channel selection in dependence of actual position data of a mobile device. Anyhow the disclosures of D4 may be readily combined with the disclosures of the documents D1 to D3, providing an additional position sensitive channel selection. However, the features of D3 can not provide any additional features that in combination would suggest an artisan to implement a transfer of update additional data relating to a current radio broadcast via an additional transfer path. The additional position information is not referring to a content of a current broadcast but only to the broadcasting station with the best radio signal.

VII. Requests

In view of the above arguments it is assumed that the Examiner's objections have been overcome, and it is therefore respectfully submitted that the new set of claims 1 to 23 as presently on file is acknowledged as being inventive. Therefore, issuance of a favorable IPER is kindly requested.


Dr. Thomas Kurig
(Patent Attorney)

Enclosure

Set of new claims 1 to 23

International Application No. PCT/IB2002/0 3890
Applicant: Nokia Corporation
Date November 09, 2004

New Claims

1. Method for providing broadcast data comprising a broadcast being sent from a broadcast station and update additional information data related to said current radio broadcast, said broadcast data being provided to at least one mobile terminal device, said mobile terminal device being connected to a server in a wireless data network, said at least one mobile terminal device comprising components for receiving said broadcast from said at least one broadcast station and for receiving said update additional information data from said server, comprising:
 - receiving at the server said update additional information data of said current radio broadcast from said at least one broadcast station, via a network connection between said server and said radio station,
 - determining at least one mobile terminal device to be supplied with said update additional information data of said current radio broadcast, and
 - updating said update additional information data of said current radio broadcast with said at least one determined mobile terminal device via said wireless communication network.
2. Method according to claim 1, wherein said server uses a presence database for determining said at least one mobile terminal device to be updated with said update additional information data of said current radio broadcast.
3. Method according to claim 1 or 2, wherein said update additional information data of said current radio broadcast from said at least one broadcast station is received from at least one second server connected to said at least one broadcast station.
4. Method according to any one of claims 1 to 3, wherein said broadcast station comprises one of said servers, wherein said update additional information data is received from a component within said broadcast station.
5. Method according to anyone of the preceding claims, further comprising determining whether said update additional information data of said current radio broadcast received from said broadcast station has changed, and updating said update

additional information data only, if said update additional information data has changed.

6. Method according to anyone of claims 1 to 5, further comprising:
 - receiving a transmission from a mobile terminal device indicating that said mobile terminal device is to be supplied with said update additional information data,
 - determining said mobile terminal device as to be supplied with said update additional information data, and
 - sending said update additional information data of said current radio broadcast to said mobile terminal device via said wireless communication network.
7. Method according to anyone of the preceding claims, further comprising:
 - receiving a transmission indicating that said mobile terminal device is no longer to be updated with said update additional information data.
8. Method for receiving broadcast data in a mobile terminal device, said broadcast data comprising a broadcast being sent from at least one broadcast station and update additional information data related to said current radio broadcast, said mobile terminal device being connected to a server in a wireless data network, said at least one mobile terminal device comprising components for receiving said broadcast from said at least one broadcast station and for receiving said update additional information data from said server, comprising:
 - receiving said broadcast from said broadcast station via a wireless broadcast channel,
 - receiving said update additional information data of said current radio broadcast, from said server via said wireless communication network, and
 - updating said update additional information data of said current radio broadcast on said mobile terminal device.
9. Method according to claim 8, further comprising displaying said updated additional information data of said current radio broadcast on said mobile terminal device.
10. Method according to claim 9, further comprising processing said update additional information data of said current radio broadcast for display.
11. Method according to one of claim 8 to 10, further comprising transmitting a message to a server in said wireless communication network to initiate the transmission of said update additional information data related to the contents of said currently received

broadcast.

12. Method according to anyone of claims 8 to 11, further comprising determining a name of said broadcast station transmitting said broadcast.
13. Method according to one of claims 8 to 12, further comprising displaying the name of said determined broadcast station and said received update additional information data of said current radio broadcast together on a display.
14. Method for providing broadcast data comprising a broadcast being sent from a broadcast station and update additional information data related to said current radio broadcast to at least one mobile terminal device, said broadcast being available for said at least one mobile terminal device, and said update additional information data being available for said at least one mobile terminal device, said mobile terminal device being connected to a server in a wireless data network, said at least one mobile terminal device comprising components for receiving said broadcast from said at least one broadcast station and for receiving said update additional information data from said broadcast station via said server, comprising:
 - transmitting said broadcast from said at least one broadcast station to said at least one mobile terminal device,
 - transmitting said update additional information data of said current radio broadcast from said at least one broadcast station to said server, via a network connection between said server and said radio station,
 - determining at the server at least one mobile terminal device to be supplied with said update additional information data of said current radio broadcast,
 - updating said update additional information data of said current radio broadcast to said at least one determined mobile terminal device via said wireless communication network, and
 - displaying said broadcast and said update additional information data of said current radio broadcast on said mobile terminal device.
15. Software tool comprising program code means stored on a computer readable medium for carrying out the method of anyone of claims 1 to 14 when said software tool product is run on a mobile terminal or network device.
16. Computer program product for providing update additional information data of a broadcast transmission via a network on a mobile terminal device, comprising loadable

program code means for carrying out the steps of anyone of claims 1 to 14 when said program is run on a mobile terminal or a network device.

17. Computer program product comprising program code means stored on a computer readable medium for carrying out the method of anyone of claims 1 to 14 when said program product is run on a mobile terminal or network device.

18. Network server for providing update additional information data related to the contents of at least one current radio broadcast from at least one broadcast station, said update additional information data to be supplied to at least one mobile terminal device, comprising:

- a network module for receiving said update additional information data from said broadcast station via a network connection between said server and said radio station,
- a database for storing indications of said at least one mobile terminal device to be updated with said update additional information data,
- a controller being connected to said network module, for processing update additional information data, and connected to said database for receiving said indications of said at least one mobile terminal device and for determining at least one mobile terminal device to be supplied with said update additional information data, and
- a wireless network module connected to said controller for updating said update additional information data to said determined mobile terminal devices.

19. Mobile terminal device, capable of displaying updated additional information data related to the contents of a current radio broadcast received from a broadcast station, comprising:

- a radio module for receiving said broadcast,
- a wireless network module for receiving said update additional information data of said current radio broadcast,
- a controller for processing said received updated additional information data of said current radio broadcast, said controller being connected to said wireless network module,
- a memory connected to said controller for storing said processed updated additional information data of said current radio broadcast, and
- a display module connected to said controller for displaying said processed updated additional information data of said current radio broadcast.

20. Mobile terminal device according to claim 19, wherein said radio module is connected to said controller, and wherein said radio module is connected to said wireless

network module to transfer data from said radio module to said wireless network module.

21. Mobile terminal device according to claim 19 or 20, wherein said radio module comprises a radio data system (RDS) module for determining said broadcast station.
22. Mobile terminal device according to anyone of claims 19 to 21, further comprising a cellular telephone module being connected to said controller.
23. System for providing broadcast data comprising a broadcast station for sending a broadcast and for providing update additional information data related to the contents of said current radio broadcast;
a network server for receiving said update additional information data, wherein said update additional information data to be supplied to at least one mobile terminal device, said network server comprising:
 - a network module for receiving said update additional information data of said current radio broadcast from said broadcast station via a network connection between said server and said radio station,
 - a database for storing indications of said at least one mobile terminal devices to be updated with said update additional information data,
 - a controller being connected to said network module, for processing said update additional information data, and being connected to said database for receiving said indications of said at least one mobile terminal device and for determining at least one mobile terminal device to be supplied with said update additional information data of said current radio broadcast, and
 - a wireless network module connected to said controller for updating said update additional information data to said determined mobile terminal devices, anda mobile terminal device capable of displaying said update additional information data of said current radio broadcast, comprising:
 - a radio module for receiving said current radio broadcast,
 - a wireless network module for receiving said update additional information data of said current radio broadcast,
 - a controller for processing said received update additional information data of said current radio broadcast, said controller being connected to said wireless network module,
 - a memory connected to said controller for storing said processed update additional information data of said current radio broadcast, and
 - a display module connected to said controller for displaying said processed update additional information data of said current radio broadcast.

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